

# **Devon Energy**

HIGH ISLAND BIK 368A

OCS-G 2429, Well No. A-10 Stk, Version 2

105.35

RKB: (ft) 124.00 ( Assumed )

Plane of Vertical Section :

		Doğrağ
(ft) (deg) (deg) (ft) (ft) (ft) (from S.L.) (from S.L.)	(ft)	("/100")
0.00 0.00 105.35 5.00 3766413.98 102436.80 0.00 0.00	0.00	
100.00 0.63 105.35 105.00 3766414.51 102436.65 0.53 -0.15	0.55	0.63
200.02 1.26 105.35 205.00 3766416.10 102436.22 2.12 -0.58	2.20	0.63
300.06 1.89 105.35 305.00 3766418.75 102435.49 4.77 -1.31	4.95	0.63
400.13 2.52 105.35 405.00 3766422.47 102434.47 8.49 -2.33	8.80	0.63
500.25 3.15 105.35 505.00 3766427.24 102433.16 13.26 -3.64	13.75	0.63
600.44 3.78 105.35 605.00 3766433.09 102431.56 19.11 -5.24	19.82	0.63
635.00 4.00 105.35 639.48 3766435.35 102430.93 21.37 -5.87	22.16	0.64
700.77 5.97 105.35 705.00 3766440.86 102429.42 26.88 -7.38	27.87	3.00
801.64 9.00 105.35 805.00 3766453.53 102425.94 39.55 -10.86	41.01	3.00
903.36 12.05 105.35 905.00 3766471.45 102421.03 57.47 -15.77	59.59	3.00
1006.26 15.14 105.35 1005.00 3766494.77 102414.62 80.79 -22.18	83.78	3.00
1110.68 18.27 105.35 1105.00 3766523.71 102406.68 109.73 -30.12	113.79	3.00
1217.02 21.46 105.35 1205.00 3766558.56 102397.12 144.58 -39.68	149.93	3.00
1325.74 24.72 105.35 1305.00 3766599.67 102385.84 185.69 -50.96	192.56	3.00
1437.40 28.07 105.35 1405.00 3766647.54 102372.70 233.56 -64.10	242.20	3.00
1552.66 31.53 105.35 1505.00 3766702.77 102357.54 288.79 -79.26	299.47	3.00
1672.36 35.12 105.35 1605.00 3766766.18 102340.14 352.20 -96.66	365.22	3.00
1797.59 38.88 105.35 1705.00 3766838.85 102320.20 424.87 -116.60	440.58	3.00
1929,85 42.85 105,35 1805.00 3766922.27 102297.31 508.29 -139.49	527.08	3.00
2071.22 47.09 105.35 1905.00 3767018.59 102270.88 604.61 -165.92	626.96	3.00
2224.90 51.70 105.35 2005.00 3767131.07 102240.01 717.09 -196.79	743.60	3.00
2355.51 55.62 105.35 2082.39 3767232.51 102212.17 818.53 -224.63	848.79	3.00
2395.55 55.62 105.35 2105.00 3767264.37 102203.43 850.39 -233.37	881.83	0.00
2572.62 55.62 105.35 2205.00 3767405.30 102164.76 991.32 -272.04	1027.97	0.00
2749.69 55.62 105.35 2305.00 3767546.22 102126.08 1132.24 -310.72	1174.10	0.00
2926.77 55.62 105.35 2405.00 3767687.14 102087.41 1273.16 -349.39	1320.23	0.00
3103.84 55.62 105.35 2505.00 3767828.07 102048.74 1414.09 -388.06	1466.37	0.00
3280.91 55.62 105.35 2605.00 3767968.99 102010.07 1555.01 -426.73	1612.50	0.00
3457.99 55.62 105.35 2705.00 3768109.91 101971.40 1695.93 -465.40	1758.63	0.00
3635.06 55.62 105.35 2805.00 3768250.84 101932.72 1836.86 -504.08	1904.77	0.00
3812.13 55.62 105.35 2905.00 3768391.76 101894.05 1977.78 -542.75	2050.90	0.00
3989.21 55.62 105.35 3005.00 3768532.68 101855.38 2118.70 -581.42	2197.03	0.00
4166.28 55.62 105.35 3105.00 3768673.61 101816.71 2259.63 -620.09	2343.17	0.00
4343,35 55.62 105.35 3205.00 3768814.53 101778.04 2400.55 -658.76	2489.30	0.00
4520.43 55.62 105.35 3305.00 3768955.45 101739.36 2541.47 -697.44	2635.43	0.00
4697.50 55.62 105.35 3405.00 3769096.38 101700.69 2682.40 -736.11	2781.57	0.00
4874.57 55.62 105.35 3505.00 3769237.30 101662.02 2823.32 -774.78	2927.70	0.00
5051.65 55.62 105.35 3605.00 3769378.22 101623.35 2964.24 -813.45	3073.83	0.00
5085.29 55.62 105.35 3624.00 3769405.00 101616.00 2991.02 -820.80	3101.60	0.00
5225.02 53.52 105.37 3705.00 3769514.78 101585.85 3100.80 -850.95	3215.44	1.50
5388.53 51.07 105.39 3805.00 3769639.50 101551.55 3225.52 -885.25	3344.79	1.50
5543.80 48.74 105.42 3905.00 3769754.00 101520.00 3340.02 -916.80	3463.56	1.50
5692.18 46.51 105.44 4005.00 3769859.67 101490.84 3445.69 -945.96	3573.18	1.50
5834.72 44.37 105.47 4105.00 3769957.55 101463.77 3543.57 -973.03	3674.73	1.50
5861.21 43.98 105.48 4124.00 3769975.35 101458.85 3561.37 -977.95	3693.20	1.50
5972.23 42.31 105.50 4205.00 3770048.51 101438.57 3634.53 -998.23	3769.12	1.50
6105.38 40.32 105.53 4305.00 3770133.20 101415.07 3719.22 -1021.73	3857.01	1.50
6234.69 38.38 105.56 4405.00 3770212.18 101393.10 3798.20 -1043.70	3938.99	1.50
6306.82 37.29 105.58 4461.97 3770254.80 101381.22 3840.82 -1055.58	3983.23	1.50

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6360.92	37.29	105.58	4505.00	3770286.37	101372.42	3872.39	-1064.38	4016.01	0.00
6486 62	37.29	105 58	4605.00	3770359 74	101351 96	3945 76	-1084.84	4092 18	0.00
6612 32	37 29	105 58	4705.00	3770433 10	101331 51	4019 12	-1105 29	4168.33	0.00
6738.02	37.29	105.58	4805.00	3770506.46	101311.05	4092.48	-1125.75	4244.49	0.00
6863 72	37.29	105.58	4905.00	3770579.83	101290.60	4165.85	-1146 20	4320.66	0.00
6989.42	37.29	105.58	5005.00	3770653.19	101270.14	4239.21	-1166.66	4396.82	0.00
7115 12	37.29	105.50	5105.00	3770726 55	101249 68	4312 57	-1187 12	4630.02	0.00
7240.82	37.25	105.58	5205.00	3770799 92	101220.00	4385 94	-1207.57	4549 14	0.00
7366 52	37.29	105.58	5305.00	3770873 28	101208.77	4459 30	-1228.03	4625.30	0.00
7492.22	37.29	105.58	5405.00	3770946.65	101188.32	4532.67	-1248.48	4701.47	0.00
7580.21	37.29	105.58	5475.00	3770998.00	101174.00	4584.02	-1262.80	4754.77	0.00
7617.78	36.73	105.58	5505.00	3771019.79	101167.93	4605.81	-1268.87	4777.39	1.50
7741.09	34.88	105.57	5605.00	3771089.27	101148.56	4675.29	-1288.24	4849.52	1.50
7861.68	33.07	105.57	5705.00	3771154.19	101130.47	4740.21	-1306.33	4916.92	1.50
7979.85	31.30	105.56	5805.00	3771214.82	101113.58	4800.84	-1323.22	4979.85	1.50
8095.83	29.56	105.56	5905.00	3771271.40	101097.82	4857.42	-1338.98	5038.59	1.50
8209.84	27.85	105.55	6005.00	3771324.16	101083.14	4910.18	-1353.66	5093.35	1.50
8322.09	26.17	.105.54	6105.00	3771373.26	101069.47	4959.28	-1367.33	5144.32	1.50
8432.73	24.51	105.54	6205.00	3771418.88	101056.79	5004.90	-1380.01	5191.67	1.50
8541.93	22.87	105.53	6305.00	3771461.14	101045.04	5047.16	-1391.76	5235.53	1.50
8649.84	21.25	105.52	6405.00	3771500.19	101034.20	5086.21	-1402.60	5276.06	1.50
8756.57	19.65	105.51	6505.00	3771536.12	101024.22	5122.14	-1412.58	5313.35	1.50
8862.24	18.06	105.49	6605.00	3771569.02	101015.10	5155.04	-1421.70	5347.49	1.50
8966.97	16.49	105.48	<b>'6705.00</b>	3771599.00	101006.79	5185.02	-1430.01	5378.60	1.50
9070.85	14.93	105.46	6805.00	3771626.11	100999.29	5212.13	-1437.51	5406.73	1.50
9173.99	13.39	105.44	6905.00	3771650.43	100992.57	5236.45	-1444.23	5431.96	1.50
9276.47	11.85	105.41	7005.00	3771672.01	100986.61	5258.03	-1450.19	5454.35	1.50
9299.40	11.51	105.40	7027.46	3771676.49	100985.38	5262.51	-1451.42	5458.99	1.50
9378.53	11.51	105.40	7105.00	3771691.71	100981.19	5277.73	-1455.61	5474.78	0.00
9480.58	11.51	105.40	7205.00	3771711.33	100975.78	5297.35	-1461.02	5495.13	0.00
9582.64	11.51	105.40	7305.00	3771730.95	100970.37	5316.97	-1466.43	5515.48	0.00
9684.69	11.51	105.40	7405.00	3771750.58	100964.97	5336.60	-1471.83	5535.84	0.00
9786.74	11.51	105.40	7505.00	3771770.20	100959.56	5356.22	-1477.24	5556.19	0.00
9888.79	11.51	105.40	7605.00	3771789.83	100954.15	5375.85	-1482.65	5576.56	0.00
9990.84	11.51	105.40	7705.00	3771809.45	100948.74	5395.47	-1488.06	5596.91	0.00
10092.89	11.51	105.40	7805.00	3771829.08	100943.34	5415.10	-1493.46	5617.27	0.00
10194.94	11.51	105.40	7905.00	3771848.70	100937.93	5434.72	-1498.87	5637.62	0.00
10296.99	11.51	105.40	8005.00	3771008.33	100932.52	5454.35	-1504.28	5670 33	0.00
10599.04	11.51	105.40	8105.00	3771007.35	100927.12	5473.57	1515.00	5609 60	0.00
10603.14	11.51	105.40	8205.00	3771907.30	100921.71	5613 22	-1520.50	5719.04	· 0.00
10705 19	11.51	105.40	8405.00	3771946 83	100910.90	5532.85	-1525.00	5739.40	0.00 0 00
10807.24	11.51	105.40	8505.00	3771966.45	100905.49	5552.47	-1531.31	5759.76	0.00
10909.30	11.51	105.40	8605.00	3771986.08	100900.08	5572.10	-1536.72	5780.12	0.00
10929.71	11.51	105.40	8625.00	3771990.00	100899.00	5576.02	-1537.80	5784.18	0.00
11011.35	11.51	105.40	8705.00	3772005.70	100894.67	5591.72	-1542.13	5800.47	0.00
11113.40	11.51	105.40	8805.00	3772025.32	100889.27	5611.34	-1547.53	5820.82	0.00
11215.45	11.51	105.40	8905.00	3772044.95	100883.86	5630.97	-1552.94	5841.18	0.00
11317.50	11.51	105.40	9005.00	3772064.57	100878.45	5650.59	-1558.35	5861.53	0.00
11419.55	11.51	105.40	9105.00	3772084.20	100873.05	5670.22	-1563.75	5881.89	0:00
11521.60	11.51	105.40	9205.00	3772103.82	100867.64	5689.84	-1569.16	5902.24	0.00
11623.65	11.51	105.40	9305.00	3772123.45	100862.23	5709.47	-1574.57	5922.61	0.00
11725.70	11.51	105.40	9405.00	3772143.07	100856.83	5729.09	-1579.97	5942.96	0.00
11827.75	11.51	• 105.40	9505.00	3772162.70	100851.42	5748.72	-1585.38	5963.32	0.00
11929.80	11.51	105.40	9605.00	3772182.32	100846.01	5768.34	-1590.79	5983.67	0.00
12031.85	11.51	105.40	9705.00	3772201.95	100840.60	5787.97	-1596.20	6004.03	0.00
12133.91	11.51	105.40	9805.00	3772221.57	100835.20	5807.59	-1601.60	6024.38	0.00
12235.96	11.51	105.40	9905.00	3772241.20	100829.79	5827.22	-1607.01	6044.74	0.00
12338.01	11.51	105.40	10005.00	3772260.82	100824.38	5846.84	-1612.42	6065.10	0.00
12440.06	11.51	105.40	10105.00	3772280.44	100818.98	5866.46	-1617.82	6085.45	0.00
12485.98	11.51	105.40	10150.00	3772289.28	100816.54	5875.30	-1620.26	6094.62	0.00

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#### General:

All operations are to be conducted in a safe and profesional manner. Maintain and practice comlete pollution control. Promptly report any oil slicks, regardless of source and size.

#### Drilling Rig Selection

<u>Plan:</u> Devon Engery currently plans on using the Glomar Baltic I rig to drill and complete this well. The rig details and specifications are included.

<u>Wellhead Equipment</u>	Cameron Standard Service Wellhead System
	20" SOW x 20-3/4" 3M, 20-3/4" 3M x 13-5/8" 5M, 13-5/8" 5M x 11" 5M

- 1. 20-3/4" 3M x 20" SOW casing head with 30" OD base plate and a 2- 1/16" 5M flanged gate valve. Install 20 3/4" 3M x 21-1/4" 2M DSA (Double Studded Adaptor).
- 13-5/8" 5M x 20-3/4 3M casing head secondary seal for 13-3/8" csg and a 2- 1/16" 5M flanged gate valve. Install 13-5/8" 5M x 13-5/8" 10M DSA
- 3. 11" 5M x 13-5/8" 5M casing head with secondary seal for 9-5/8" csg and one 1-13/16" 5M valves. Install 11" 5M x 13-5/8" 10M DSA

#### Blowout Preventers and BOP Tests

- 1. 22" Drive Pipe Nipple up 21-1/4", 2M diverter stack consisting of a 21-1/4" annular preventer, and a spool with choke and kill line outlets. Function test diverter.
- 2. 18-5/8" Conductor Pipe Nipple up 21-1/4", 2M diverter stack consisting of a 21-1/4" annular preventer, and a spool with choke and kill line outlets. Function test diverter.
- 3. 13 3/8" Casing Nipple up 13-5/8" 10M BOP stack consisting of a 13-5/8" annular preventer,
  (2) pipe rams, (1) blind ram, and a spool with choke and kill line outlets.
- 4. 9 5/8" Casing Nipple up 13-5/8" 10M BOP stack consisting of a 13-5/8" annular preventer,
  (2) pipe rams, (1) blind ram, and a spool with choke and kill line outlets.
- While drilling, operate rams on each trip but no less than once weekly. Test all rams and lines to 250/3500 psi and annular preventer to 250/3500 psi (70% of rated working pressure). Each tour shall conduct BOP drill daily.
- 6. While completing, operate rams on each trip but no less than once weekly. Test all rams and lines to 250/5000 psi and annular preventer to 250/3500 psi (70% of rated working pressure). Each tour to conduct BOP drill daily.
- 7. Note all BOP openings and closings, each drill and all tests on the IADC and DVN reports.

#### **Other Safety Equipment**

Install and put in operations a Degasser, adjustable choke, gas detector, and barrel-o-graf flow show unit when the well is spudded. A Gray inside BOP and TIW safety valve will be maintained on the rig floor in the open position at all times while drilling operations are being' conducted. These valves for all pipes sizes in use will be provided. A lower well control valve shall be used at the bottom of the top drive. Pump stroke counters will be maintained in good



#### Mud Logging and Cuttings

A manned mud logging unit will be utilized on this project.

#### **Zone Protection Statement**

Devon Energy Production Company LC plans to protect all freshwater or hydrocarbon bearing zones with either a cement plug or cemented casing string as per Federal Register "30 CFR Parts 250.112".

#### **Mud Disposal Statement**

Devon Energy Production Company LC plans to use a water based mud system to drill this well. Devon also plans to dispose of liquid mud and drill cuttings on-site in compliance with Devon Energy's approved EPA permit.

#### Safe Drilling Margin

A safe drilling margin of 0.5 ppg will be maintained between the mud weight used and the equivalent mud weight of the previous casing seat test. Drilling operations will be suspended when the safe drilling margin is not maintained.

#### Mud and Chemicals

Mud and mud engineering services will be furnished by M-I Drilling Fluids.

#### Crewboat and Terminal Loading

Devon Engery's dock at Intracoastal City, Louisiana will be used for crewboats. Terminal loading will be at Devon Energy's dock and Service Truck Line's pipeyard in Intracoastal City, Louisiana.

#### **Drilling Reports**

- 1. Two (2) legible copies of the IADC Daily Drilling Report must be forwarded to Devon Energy's Houston office.
- 2. Make a detail on the IADC Daily Drilling Report of all tubular goods used.
- 3. Send in morning reports to the Houston office between 6:00 and 6:30 a.m. each morning.

#### In Case of Emergency - Call

Joel Guichard Houston, Texas Office: 713-286-5963 Pager: 337-341-0334 Home: 281-873-5442 Lafayette: 337-981-4174 Barney Gary Houston, Texas Office: 713-286-5964 Pager: 888-425-4189 Home: 281-332-4492 Mobile: 281-382-2884 High Island A368 #A10ST OCS G 2433 A-10ST CASING DESIGN SUMMARY 9/11/00

A. Drive Pipe: 22" x 1/2" driven to 635'.

B. Conducto	20" casing to be set @ 1105' MD							
Siz	e O.D.: 18 5/8"	Weight:	87.5#	ŧ	Grade:	K55	Coupling:	BTC
Pro	operties:	Internal Y Collapse: Joint Stre Body Yiel	rield: ength: ld:		225 63 142 136	0 psi 0 psi 7 M-lbs 8 M-lbs		
Bu	irst Safety Facto	r =		7.33	;			
Co	llapse Safety Fa	ctor ≏		2.87				
Ax	ial Safety Factor	=		2.21				
Tri	axial Safety Fact	tor =		2.20				
<u>C. Surface C</u>	Casing:	13 3/8" ca	asing to	o be s	et @ 486	6'		
Siz	e O.D.: 13 3/8"	Weight:	68#		Grade:	J55	Coupling:	втс
Pro	operties:	Internal Y	'ield:		345	0 psi		
		Collapse:			195	0 psi		
		Joint Stre	ngth:		114	0 M-lbs		•
		Body Yiel	ld:		106	9 M-lbs		
Bu Co Ax Tri	r = ctor = · = tor =		2.90 4.52 2.01 2.00	 				
D. Inermedia	ate Casing:	9 5/8" cas	sing to	be se	et @ 10292	2'.		
Siz	e O.D.: 9 5/8"	Weight:	53.5 <b>#</b>	ŧ	Grade:	P110	Coupling:	LT&C
Pro	operties:	Internal Y	'ield:		1090	0 psi		
		Collapse:			795	0 psi		
		Joint Stre	ngth:		142	2 M-lbs		
		Body Yiel	ld:		171	0 M-lbs		
P	ret Safatu Easta	, <del></del>		3 NG				
Bu Co	llanse Safety Facto	rtor =		9.00				
	ial Safety Factor			2.51				
Tri	axial Safety Fact	or =	•	3.00				
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E. Production Casing

7" casing to be set @ 12486'.



Size O.D.:	7"	Weight:	32#	Grade:	P110	Coupling:	STL
Properties:		Internal Yield: Collapse: Joint Strength: Body Yield:		1246 1078 68 102	0 psi 0 psi 7 M-lbs 5 M-lbs		
Burst Safety Factor = Collapse Safety Factor = Axial Safety Factor = Triaxial Safety Factor =			23.0 1.6 3.8 1.9	1 3 1 2			

Casing Design, WellProgram

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### High Island A368 #A10ST OCS G 2433 A-10ST MAXIMUM ANTICIPATED SURFACE PRESSURE 9/11/00

#### A. 22" Drive Pipe to 635' MD/TVD

#### B. 18-5/8" Conductor Casing @ 1105' MD/1100' TVD - Drilling MASP

MASP = (0.05195 x (FG at shoe + SF) x Casing Seat Depth) - (0.05195 x Fresh Water x Casing Seat Depth)

C-TVD (ft) = <u>1100</u>	FG (ppg) = <u>12.00</u>	SF (ppg) =0.50	FW (ppg) = <u>8.33</u>
MASP = $(0.05195 \times (12 + 0.5) \times 1)^{-1}$	- 100) - (0.05195 x 8.33	x 1100)	MASP = 238 nsi
(0.00100 x (12 0.0) x 1		x 1100/	

MMS MASP = (0.05195 x FG at shoe x Casing Seat Depth) - (0.1 x Casing Seat Depth)

H-TVD (ft) = <u>3500</u>	PP (ppg) = <u>9.20</u>	Gas % = <u>70%</u>	MW (ppg) = <u>9.70</u>	
S MASP = (0.05195 x 12 x 11	00) - (0.1 x 1100)		MMS MASP = 576 psi	

MMS MASP =  $(0.05195 \times 12 \times 1100) - (0.1 \times 1100)$ 

#### C. 13 3/8" Surface Casing @ 4866' MD / 3500' TVD - Drilling MASP

MASP = (0.05195 x (FG at shoe + SF) x Casing Seat Depth) - (0.05195 x Fresh Water x Casing Seat Depth)

C-TVD(ft) = 3500FG (ppg) = 14.00 SF (ppg) = 0.50 FW (ppg) = 8.33 MASP =  $(0.05195 \times (14 + 0.5) \times 3500) - (0.05195 \times 8.33 \times 3500)$ MASP = 1,122 psi

MMS MASP = (0.05195 x FG at shoe x Casing Seat Depth) - (0.1 x Casing Seat Depth)

H-TVD (ft) = 8000 PP (ppg) = 11.00 Gas % = 70% MW (ppg) = 11.50 MMS MASP =  $(0.05195 \times 14 \times 3500) - (0.1 \times 3500)$ MMS MASP = 2,196 psi

#### D. 9 5/8" Intermediate Casing @ 10292' MD / 8000' TVD - Drilling MASP

MASP = (0.05195 x (FG at shoe + SF) x Casing Seat Depth) - (0.05195 x Fresh Water x Casing Seat Depth)

C-TVD (ft) = <u>8000</u>	_ FG (ppg) = <u>15.50</u>	SF (ppg) =0.50	FW (ppg) = 8.33	
MASP = (0.05195 x (15.5 + 0.5) x	8000) - (0.05195 x 8.3	3 x 8000)	MASP = 3,188 psi	

MMS MASP = Hole Depth x ((0.05195 x Pore Pressure -0.1 x Gas % - 0.05195 x Mud Weight x(1 - Gas %)))

H-TVD (ft) = 10150 PP (ppg) = 12.00 Gas % = 70% MW (ppg) = 12.50

MMS MASP = 10150 x ((0.05195 x 12 - 0.1 x 0.7 - 0.05195 x 12.5 x (1 - 0.7))) MMS MASP = 3,640 psi

#### 7" Production Liner @ 1\_\_\_\_6' MD / 10150' TVD - Production MASP

MASP = (0.05195 x Perf Pore Pressure x Perf Depth) - (Gas Gradient x Perf Depth)

P-TVD (ft) = 8576 PPP (ppg) = 8.97 GG(psi/ft)= 0.115

MASP =  $(0.052 \times 8.97 \times 8576) - (0.115 \times 8576)$ 

MMS MASP = (0.05195 x Pore Pressure x Casing Seat Depth) - (0.1 x Casing Seat Depth)

C-TVD (ft) = 10150 PP (ppg) = 8.97

MASP = (0.052 x 8.97 x 10150) - (0.1 x 10150)

MASP=3,719psi

0.1

GG (psi/ft) =

MASP=3,005psi

# \*\*Summary of MASP calculations

- Production Load Case Fully evacuated using gas gradient as calculated by Redlich-Kwong equation in StressCheck. Or fully evacuated with 0.115 psi/ft gas gradient at depths < 15,000' and 0.15 psi/ft at depths > 15,000'
- Intermediate and Deep Surface (>4500') Frac at shoe with 0.5 ppg additional frac gradient and 8.33 ppg water inside casing.
- Conductor and shallow surface (<4500') Same as above, however uncertainty in frac gradient may require use of 1.0 ppg increase in frac gradient in some cases.
- \*\*NOTE: Calculations not valid when using a diverter.

#### A. 22" Drive Pipe @ 635' MD/TVD - Diverter in Place

#### B. 18-5/8" Conductor Casing @ 1105' MD / 1100' TVD - Diverter in Place

Test casing with 9.5 ppg mud to 200 psi surface pressure for 30 minutes and record on chart.

CTP = (0.7 x Internal Yield) - (0.05195 x (Mud Weight - Backup Mud Weight) x TVD)

TVD (ft) = <u>1100</u>	MW (ppg) = <u>9.50</u>	BMW (ppg) = <u>8.33</u>	IYP (psi) = 2250	
CTP = (0.7 x 2250) - (0.05195 x (9	9.5 - 8.33) x 1100)	CTP =	1,508 psi	
MMS CTP = (0.7 x 2250) - (0.0519	95 x (9.5 - 9.0) x 1100)	MMS CTP =	1,546 psi	

#### C. 13 3/8" Surface Casing @ 4866' MD / 3500' TVD

Test casing with 10.0 ppg mud to 2,233 psi surface pressure for 30 minutes and record on chart. Test casing shoe to leak off with 10.0 ppg mud to ± 818 psi surface pressure and record on chart.

CTP = (0.7 x Internal Yield) - (0.05195 x (Mud Weight - Backup Mud Weight) x TVD)

TVD (ft) = <u>3500</u>	MW (ppg) = <u>10.00</u>	BMW (ppg) = <u>8.33</u>	)[	YP (psi) =	= <u>_3450</u>
CTP = (0.7 x 3450) - (0.05195 x (	(10 - 8.33) x 3500)		)TP = -,	2,111	'psi
LOTP = (Frac Gradient - Mud We	eight) x 0.05195 x TVD		Ė	<sup>:</sup> G (ppg) <del>-</del>	= 14.50
LOTP = (14.5 - 10) x 0.05195 x 3	500		)TP =	818	psi
MMS CTP = (0.7 x 3450) - (0.051	195 x (10 - 9.0) x 3500)	MMS	CTP =	2,233	psi

#### D. 9 5/8" Intermediate Casing @ 10292' MD / 8000' TVD

Test casing with 11.5 ppg mud to 6,591 psi surface pressure for 30 minutes and record on chart. Test casing shoe to leak off with 11.5 ppg mud to  $\pm$  1,870 psi surface pressure and record on chart.

CTP = (0.7 x Internal Yield) - (0.05195 x (Mud Weight - Backup Mud Weight) x TVD)

TVD (ft) =  $\underline{8000}$ MW (ppg) =  $\underline{11.50}$ BMW (ppg) =  $\underline{8.33}$ IYP (psi) =  $\underline{10900}$ CTP = (0.7 x 10900) - (0.05195 x (11.5 - 8.33) x 8000)CTP =  $\underline{6,313}$  psiLOTP = (Frac Gradient - Mud Weight) x 0.05195 x TVDFG (ppg) =  $\underline{16.00}$ LOTP = (16 - 11.5) x 0.05195 x 8000LOTP =  $\underline{1,870}$  psi

#### E. 7" Production Liner @ 12486' MD / 10150' TVD w/ TOL @ 10042' MD

Test TOL with 12.3 ppg mud to 2,038 psi surface pressure for 30 minutes and record on chart. Test casing with 12.3 ppg mud to 2,038 psi surface pressure for 30 minutes and record on chart.

CTP = (0.7 x Internal Yield) - (0.05195 x (Mud Weight - Backup Mud Weight) x TVD)

	TVD (ft) = <u>10150</u>	MW (ppg) = <u>12.30</u>	BMW (ppg) =	9.00	IYP (psi) =	12460
CTP = (0.	7 x 12460) - (0.05195 x	x (12.3 - 9) x 10150)		CTP =	6,982	psi
. ȚOL TP =	: 500 + ( 0.05195 x (9-5	/8" LOT - MW) x TVD)				
TOL TP =	= 500 + (0.05195 x (16 -	12.3) x 8000)		TOLTP=	2,038	psi

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#### High Island A368 #A10ST OCS G 2433 A-10ST CEMENTING SUMMARY 9/11/00

#### A. Drive Pipe - No Planned Cement Behind Pipe

#### B. Conductor Casing

Set 18-5/8" Conductor casing in 24" hole at 1105'. Cement back to surface, then wash out to mud line. Use 75% excess in this hole section.

18-5/8", 87.5#, K55, BTC casing set at 1105'.

		BOC (ft)	TOC (ft)	VF (cuft/ft)	Excess		
Inside Prev. Casing	=	635'	0'	0.6292	0%	=	400 cuft
Open Hole (Lead)	=			<sup>'</sup> 1.2496	75%	=	0 cuft
Open Hole (Tail)	=	1105'	635'	1.2496	75%	=	1,028 cuft
Shoe Joint	=	1105'	1065'	1.7193	0%	=	69 cuft
Total	=					=	1,497 cuft
						=	267 bbl
Lead Slurry Yield =	3.07	cuft/sack	•	Lead Slurry	Density =	11.4	ppg
Tail Slurry Yield =	1.09	cuft/sack		Tail Slurry D	ensity =	16.4	ppg

Cement with 130 sacks of Class H cement mixed at 11.4 ppg. Cement with 1,006 sacks of Class H cement mixed at 16.4 ppg.

#### C. Surface Casing

Set 13 3/8" Surface casing in 17 1/2" hole at 4866'. Cement back to surface, then wash out to mud line. Use 75% excess in this hole section.

13 3/8", 68#, N80, BTC casing set at 4866'.

		BOC (ft)	TOC (ft)	VF (cuft/ft)	Excess		
Inside Prev. Casing	=	1,105'	0'	0.7437	0%	=	822 cuft
Open Hole (Lead)	=	4366'	1105'	0.6946	75%	=	3,964 cuft
Open Hole (Tail)	=	4866'	4366'	0.6946	75%	=	608 cuft
Shoe Joint	=	4866'	4786'	0.8406	0%	=	67 cuft
Total	=					= ·	5,461 cuft
						= .	973 bbl
Lead Slurry Yield =	3.07	cuft/sack		Lead Slurry	Density =	11.4	ppg
Tail Slurry Yield =	1.08	cuft/sack		Tail Slurry D	ensity =	16.4	ppg

Cement with 1,559 sacks of Class H cement mixed at 11.4 ppg. Cement with 625 sacks of Class H cement mixed at 16.4 ppg.

### D. Intermediate Casing

Set 9 5/8" Intermediate casing in 12 1/4" hole at 10292'. Cement back to 4600'. Use 50% excess in this hole section.

9 5/8", 53.5#, P-110, LT&C casing set at 10292'.

		BOC (ft)	TOC (ft)	VF (cuft/ft)	Excess		
Inside Prev. Casing	=	4866'	4600'	0.3354	0%	=	89 cuft
Open Hole (Lead)	=	9792'	4866'	0.3132	50%	Ξ	2,314 cuft
Open Hole (Tail)	=	10292'	9792'	0.3132	50%	=	235 cuft
Shoe Joint	=	10292'	10212'	0.3973	0%	=	32 cuft
Total	=	_				=	2,670 cuft
						=	476 bbl
Lood Slumy Viold -	2.24	ouff/cook			Donoity -	12.5	000

Leau Sturry Helu -	2.21	CUIVSOCK	Lead Ordiny Density -	12.0	- PPA
Tail Slurry Yield =	1.14	_cuft/sack	Tail Slurry Density =	16.4	_ppg

Cement with 1,087 sacks of Class H cement mixed at 12.5 ppg. Cement with 234 sacks of Class H cement mixed at 16.4 ppg.

#### E. Production Liner

Set 7" Production liner in 8 1/2" hole at 12486'. Cement back to TOL @ 10042'. Use 25% excess in this hole section.

7", 32#, P-110, STL casing set at 12486'.

		BOC (ft)	TOC (ft)	VF (cuft/ft)	Excess		
Inside Prev. Casing	=	10042'	9792'	0.3973	0%	=	99 cuft
Liner Lap	=	10292'	10042'	0.1301	0%	=	33 cuft
Open Hole	=	12486'	10292'	0.1268	25%	=	348 cuft
Shoe Joint	=	12486'	12406'	0.2025	0%	=	16 cuft
Total	=	-				=	496 cuft
				-		=	88 bbl
Tail Sturry Yield =	1.14	cuft/sack		Tail Slurry D	ensity =	16.4	ppg

Cement with 435 sacks of Class H cement mixed at 16.4 ppg.

#### High Island A368 #A10ST OCS G 2433 A-10ST DRILLING FLUIDS SUMMARY 9/11/00

#### A. Minimum Mud Quantities

Depth Range (Feet - MD)	Hole V <u>(Bar</u>	/olume <u>rels)</u>	Surface Volume (Barrels)	Barite <u>(Sacks)</u>	Gel (Sacks)
	, csg	OH			
0' - 1105'	370	263	500	600	200
0' - 4866'	338	111 <del>9</del>	500	1000	200
0' - 10292'	729	791	500	1000	200
0' - 12486'	728	154	500	1000	200

#### **B. Drilling Mud Additives**

Devon Energy plans to use both water based mud and synthetic oil based mud to drill the OCS G 2433 A-10ST well. Mud additives which could be used during the drilling of this well are as follows:

M-I BAR	SALT GEL	CALCIUM CARBONATE	NOVATHIN
M-I GEL	LIME	SODIUM BICARBONATE	NOVAMOD
CAUSTIC SODA	MIX II	LUBRIGLUIDE	HRP
TANNATHIN	XCD POLYMER	LUBE167	VG69
DEFOAM-X	POLYPLUS	NOVAMUL	ECOTROL
DRIL-KLEEN	KWIK SEAL M	NOVAWET	SYNTHETIC BASE OIL

#### C. Minimum Barite Requirements

Based on maximum mud weight of 12.3 ppg to weight up 0.5 ppg, need 52,030 lbs of barite or 520 sacks at 100# per sack.

Volume =	1520	MW2 = 12.8	MW1 = 12.3
PPB =	Volume x (MW	/2 - MW1)/(35 - MW2)	
PPB =	1520 x (12.8 -	12.3)/(35 - 12.8)	
PPB =	34.23		

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Press and the second	J	THE MER		I - I	l	JUNUUL (	PT. L85.)
DESCRIPTION	DEL AND THREAD	LENGTH THROUGH BOLT	5TU00ED	NUT SIZE	CASKET	API SAZ LUBRICANT	MOLY LUBRICANT
13 5/8" - 5,000	1 3/8 -BUNC	8 3/1	12 3/4"	1 5/8 -8LHC	Bx-160	2,150	1,375
13 5/8" - 10,000	1 7/8"-8UNC	17 3/4"	11	1 7/6"-6LNC	8x-159	3,325	2,125
3 1/15 - 10,000	1-404	1 1/5	Y	1 - 50.040	81-154	175	300



	- 55	-1	
		1	ANNULAR PREVENTER, HYDRE, 13 5/6" BORE, 5,000 PS W.P., TYPE TCK, WITH API 13 5/8" - 5,000 PS W.P., BX-160 STUDDED TOP X API 13 5/8" - 10,000 PS W.P., BX-159 FLANGE BOTTOM CONNECTION.
PREVENTER		2	RAM PREVENTER, CHW 13 3/8" BORE, 10,000 PSI W.P. TIFE U' DOUBLE (CANTT, WITH API 13 5/8" - 10,000 PSI W.P. FLANGE TOP AND BOTTION CONNECTIONS, AND WITH FOUR (4) APIL 3 1/15" - 10,000 PSI W.P. BX-134 FLANGE DUTLET CONNECTIONS.
	3	2	3 1/16" BORE, 10,000 PSI W.P. CHOKE/KOLL UNE ASSEMBLY, CONSISTING OF: 3 1/18" ~ 10,000 PSI W.P. MANUALLY
BLIND RAM		1	OPERATED GATE VALVE." 3 1/16" - 10,000 PSI W.P. HYDRAULIC OPERATED GATE VALVE WITH MANUAL LOCK.
		٩	PLANCE, BLIND, APL 3 1/16" - 10,000 PSI W.P. BX-154
5° PIPE RAM			
RAM			

#### NOTES:

- 1. ALL COMPONENTS ARE SUITABLE FOR SOUR GAS (H2S) SERVICE IN ACCORDANCE WITH API SPEC. 6A AND NACE MR-01-75. 2. ALL FLANGE BOLTS ARE ASTM A-193, GRADE 87 MATERIAL. ALL
- 3.
- FLANGE NUTS ARE ASTM A-194, GRADE 2H MATERIAL. ALL RAM PREVENTERS ARE FITTED WITH MANUAL LOCKING DEVICES. LOCATION OF CHOKE AND KILL LINES OFF OF SIDE OUTLETS OF RAM PREVENTERS MAY BE DIFFERENT THAN WHAT IS SHOWN ON DRAWING. 4.

# ESTIMATED WEIGHT: 64,000 LBS.

GLOMAR BALTIC 1 13-5/8" - 10,000 PSI W.P. BLOWOUT PREVENTOR STACK M.T.S. ¥/31/1 ntribe at e/4/4 8-936-T013

GLOBAL MARINE DRILLING COMPANY

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'00 14:14 FR GLUBHL MARINE DRLG CU281 496 8908 TO 97132865786 P.02/02 UNITED STATES OF AMERICA DEPARTMENT OF TRANSPORTATION UNITED STATES COAST GUARD EMPORARY CERTIFICATE OF INSPECTION This Temporary Certificate of Inspection is Issued under the provisions of Title 46 United States Code, Section 399, in lieu of the regular certificate of inspection, and shall be in force only until the receipt on board said vessel of the original certificate of inspection, this certificate In no case to be valid after one year from the date of inspection. OFFICIAL NUMBER VESSEL J. HOME PORT GROSS TONS 10529 OPERATOR/ADDRESS BALTIC JUC: WARINE. ELDRIDGE PARKINGY The following complement of licensed officers and crew is required to be carried; included in which there Certificated Lifeboatment and Certificated Tankermen: ... must be Able Seame Master & 1st Class Pliet Fireman/ Watartandars Chief Engineer Master Chief Male Class Pilot Ordinary Seamon 1st Asst. Engineer Oilers CRUD OTHER\_ 2nd Asst, Engineer 2nd Mate Radio Officer Deckhands: Engineer(s) Operator(s) Mate(s) HIn addition the vessel may carry \_ other perisons in the crew, \_ passengers, persons in addition to the crew, and 65 CMANSTALLAL PERSINCE Total persons allowed DATE DRYDOCKED Maximum steam pressure allowed p.s.i. ROUTE PERMITTED AND CONDITIONS OF OPERATION OCEA TO THE GULF OF MEXICO, NOT EMTERIATIONAL VOYAGE. SPECIAL LIMITOD TO: อม STEEZS USED In CONSTRUCTION. INSPECTED AND APPROVED POR THE CARRIAGE OF Inspection of the above vessel was completed on XD MAU JOVD I HEREBY CERTIFY that on this date the vessel was in all respects in conformity with applicable vessel inspection laws and regulations prescribed thereunder, Kukaul M. Kasen OFFICER IN CHARGE, MARINE INSPECTION INSPECTION ZONE RICHARD M. KASER, CDR. USCG, BYDIR HOUSTON-GALVESTON, TEXAS DEPT. OF TRANSP, USCG . CG-854 (Rev. 2-79) Original - ATALOLO PRA ENOITIOS ZUDIVAR

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DEPARTMENT UNITED STA	TES COAST GUARI		EXPIRA	TION DATE :	20MAY00
Ertificate	of In	spect	ion		
VESEEL NAME	OFFICIAL NUMBE	R CALL	SIGN SE	AVICE	
GLOMAR BALTIC I	D663783	KMH	G M	ODU	
NATL VESSEL DOC CTR	STEEL	1013			
PLACE BUILT BROWNSVILLE TX	24FEB84	GROSS TONS	NET TONS 10529	DWT	270.00
OWNER	OPERATOR	L		<u></u>	_ <u>_</u>
GLOBAL MARINE BALTIC INC 777 N ELDRIDGE PARKWAY HOUSTON, TX 77079	GLOBAL 777 N E HOUSTON	MARINE D LDRIDGE , TX 770	RILLING PARKWAY 79		
THIS VESSEL MUST BE MANNED WITH THE FOLLOWING LIC WHICH THERE MUST BE CERTIFICATED LIFEBOATMEN	CENSED AND UNLI	CENSED PERS	ONNEL, INCI NKERMAN.	LUDED IN	
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LIMITED TO THE GULF OF MEXICO, NOT	ON AN INTE	RNATIONA	L VOYAG	E.	
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DEPARTMENT OF TRANSPORTATION UNITED STATES COAST GUARE

Certificate of Inspection

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DEPARTMENT OF TRANSPORTATION. UNITED STATES COAST GUAF

# Certificate of Inspection

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	*FIXED EXTIN	GUISHING SYSTE	EMS*	- <b>L</b>
SPACE PRO	DIECIED	AGENT	CAPACITY	
PAINT LOCKER			29	•
SCP POON		HALON	316	,
ENGINE BOOM		HALON	1068	
ENGINE ROOM	TOR HOUSE	HALON	14.2.	
CONTROL ROOM		HALON	115	
*FIRE_EXT	CINGUISHERS - HAND	PORTABLE AND	SEMI-PORTABLE*	
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# INTERN.\_FIONAL LOAD LINE CL\_.FIFICATE (1966)

Issued under the provisions of the International Convention on Load Lines, 1966, under the authority of the Government of the

# UNITED STATES OF AMERICA, 8306773-8

Commandant, U.S. Coast Guard,

Certificate No.

# by the American Bureau of Shipping

duly authorized for assigning purposes under the provisions of the Convention

Name of Ship Official Distinct		Official Number or Distinctive Letters	fficial Number or Port of Registry vistinctive Letters		istry	try Length (L.) as defined in Article 2( i.e., 46 CFR 42.13-		ength (L.) as 1 in Article 2(8): 6 CFR 42.13-15	
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Freeboard	l from Deck I	Line to	Center of Ring 1	2'-1-1/8"	,			Load	Line
Tropical	N/A	feet	'N/A ir	nches	(T)			N/A	inches above (S)
Summer	N/A	feet	N/A in	nches	(S)	- UI	per edg	e of line thro	ough center of ring
Winter	N/A	feet	N/A ii	nches	(W)			N/A	inches below (S)
Winter North Atla Note: Freet	antic N/A coards and load liv	fect res which	N/A in a are not applicable need	nches d not be eni	(WNA) cred on the cert	ificate.		N/A	inches below (S)
Allowance for f Note: All m The upper edge OPPOSITE TO	resh water for neasurements are to of the deck lin P OF STEEL	all free to upper o ne from UPPER	eboards N/ edge of the respective h 1 which these freet C	A inches orizontal lip ooards are deck at	s. nes. e measured is side.	5:	e.		•
THIS CERTIFIC LONG AS OPE IN THE UNIT'S ISSUED BY TH MARINE SAFE 21 JUNE 1994 A	CATE IS VAL RATING RES S STABILITY IE COAST GU CTY CENTER ARE OBSERV	ID ON TRICT LETTI JARD AND I ED.	LY SO IONS ER DATED	Ð			NA <sup>1</sup>		, ,
Date of initial o	r periodical su	urvey 3	1 DECEMBER 19	998		•		·	

THIS IS TO CERTIFY that this ship has been surveyed and that the freeboards have been assigned and load lines shown above have been marked in accordance with the International Convention on Load Lines, 1966.

This certificate is valid until <u>31 DECEMBER 2003</u> " subject to annual surveys in accordance with article 14(1)(c) of the Convention, and endorsement thereof on the reverse side of the Certificate.

SSIFICATION AND DOCUMENTATION CEI

. \*\* At the expiration of this certificate, applicable reissuance should be obtained in accordance with the Load Line Regulations.

Issued at <u>Houston, Texas</u> <u>17 AUGUST 1999.</u> The undersigned declares that he is duly authorized by the said Government to issue this Certificate. LL9-A Rev. 7/96 HOUSTON OF MANAGER

M. J. Davison, Supervisor

#### ANNUAL SURVEY

THIS IS TO CERTIFY that at a periodical inspection required by article 14(1)(c) of the Convention, the ship was found to comply with the relevant provisions of the Convention.

Place:	
	Date
	Surveyor to the American Dursey of China inc
(Signature)	Surveyor to the American Bureau or Suppring
-	· · · ·
Place:	Data
·	Surveyor to the American Bureau of Shipping
(Signature)	:
Disert	· · ·
Place:	Date:
	Surveyor to the American Bureau of Shipping
(Signature)	•
Place:	
	Date:
(Si)	Surveyor to the American Bureau of Shipping
(Signabire)	
Place:	Data
	Date:
	Surveyor to the American Bureau of Shinning
(Signature)	
Notes: 1. When a ship departs from a port fuel and all other materials required for consum	tuated on a river or inland waters, deeper loading shall be permitted corresponding to the weight of ion between the point of departure and the sea.
2. When a ship is in fresh water of When the density is other than unity, an allowa	it density the appropriate load line may be submerged by the amount of the fresh water allowance. e shall be made proportional to the difference between 1.025 and the actual density.
3. It is the owner's responsibility t provide guidance as to stability of the vessel un in 46 CFR 42.09-1.	urnish the master with approved information and instructions for loading and ballasting this vessel r varying conditions of service and to avoid unacceptable stresses in the vessel's structure, as defin
4. The Winter North Atlantic Load Ocean during the winter months as defined by a seasonal load lines apply in different parts of th	ine applies only to vessels of 328 fL in length or less, which enter any part of the North Atlantic Load Line Regulations in 46 CFR 42.30-5 and 42.30-35. The periods during which the other world are stated in the Load Line Regulations 46 CFR 42.30-5 to 42.30-30, inclusive.
<ul> <li>S. This Load Line Cattificate will</li> <li>(a) The annual surveys have no</li> <li>(b) The certificate is not endor</li> <li>(c) Material alterations have be freehoard.</li> </ul>	canceled by the Commandant, U.S. Coast Guard, if peen carried out within three months either way of each anniversary date of the certificate. I to show that the ship has been surveyed as indicated in (a). I made to the hull or superstructures such as would necessitate the assignment of an increased

- (d) The fittings and appliances for the protection of the openings, guardrails, freeing ports, or the means of access to the crew's (c) The munips are type have not been in as effective a condition as they were when the Certificate was issued.
   (e) The structural strength of the ship is lowered to such an extent that the ship is unsafe.

6. When this Certificate has expired or been canceled, it must be delivered to the Assigning Authority.

BURREAU OF SEAL
A MARINE CONTRACTOR OF THE REAL OF THE REA
CHARTERED NUMBER 8306773
CERTREELGASIE: OF CLASSEELGASION
GLOMAR BALTIC I
of Houston, TX, U.S.A.
Description Steel Barge Drilling Platform
Dimensions, Length 270.00' Breadth 268.00' Depth 28.75'
J Tonnage, Gross 10,529 Net 10,529
Owner_GLOBAL MARINE DEEPWATER DRILLING, INC.
Shipbuilder_MARATHON LETOURNEAU INC.
Engine Builder
Year of Build 1983 Hull Number 212
This is to Gertify that the above has been surveyed in accordance with
the Rules of this Bureau and entered in the Record with the Glass
*Al Self Elevating Drilling Unit
<u>19 May 1999</u> Issue Dag <i>Hui Forma</i> <i>Issue Dag</i> <i>Issue Dag</i> <i>Issu</i>
Chief Surveyor/Director Assistant Secretary of Classification
NOTE: This certificate evidences compliance with one or more of the Rules, Guides, standards or other criteria of American Bureau of Shipping and is issued solely for the use of the Bureau, its committees, its clients or other authorized entities. The classification certificate is a representation only that the vessel, structure, item of material, equipment or machinery or any other item covered by this certificate has met one or more of the Rules of American Bureau of Shipping. The certificate is governed by the terms and conditions on the reverse side hereof, and governed by the Rules and standards of American Bureau of Shipping who shall remain the sole judge thereof.

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## SCHEDULE C

## EQUIPMENT FURNISHED

## **GLOMAR BALTIC I**

## 1. DRILLING UNIT DESCRIPTION AND SPECIFICATIONS:

The self-elevating drilling unit, the GLOMAR BALTIC I, will be as described in Appendix I attached hereto and made a part of this Schedule C.

### 2. DRILLING UNIT MOORING SYSTEM:

- a. Four (4) point anchor system.
- b. Moorings: Four (4) 2,100' x 1-1/2", 6 x 36 IPS, IWRC wire lines.
- c. Anchors: Four (4) 10,000 lb. Danforth anchors.
- d. Mooring Winches: Four (4) Marathon LeTourneau Series W-1500 TS single drum winches each driven by an electric motor.
- e. Four (4) anchor buoys.
- f. Pendant wires, shackles and associated jewelry and wireline for crown lines.
- g. Workboat mooring line (replacement line furnished by Operator).

#### 3. DRILLING EQUIPMENT:

- a. Drawworks: National 1625 DE drawworks fitted with Elmagco 7838 electric brake, powered by three (3) GE 752 Series electric motors.
- b. Drill Line: 1-1/2" 6 x 19 IPS IWRC.
- c. Wire Line Anchor: National type EB.
- d. Sandline: 9/16" 6 x 7.
- e. Derrick: Brown Services 160' high, 30' x 30' base with 1,300,000 lbs. static hook load capacity.
- f. Mud Pumps: Two (2) National 12-P-160, triplex pumps, 1,600 total continuous horsepower each, powered by two (2) GE 752 Series electric motors. Equipped with 6-1/2" liners.
- g. Rotary Table: National C-495 rotary table independently driven by GE 752 Series electric motor with National two-speed transmission.

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- h. Top Drive: Varco TDS-4H with 650 ton capacity driven by one (1) GE 752 Hi-torque series motor.
  - (1) Two (2) Varco 6-5/8" regular, upper safety valves, air actuated 15,000 psi WP.
  - (2) Two (2) Varco 6-5/8" regular, lower safety valves, 15,000 psi WP.
- i. Crown Block: Brown Services type 860-C with 740 tons rated capacity with 60" sheaves.
- j. Traveling Block and Hook: National Universal hook block with 650 ton capacity.
- k. Swivel: National P-650 with 650 ton capacity.
- I. Rotary Hose: Two (2) 3-1/2" x 70', 5,000 psi WP with 4" male thread coupling.
- m. Weight Indicator: Martin-Decker.
- n. Spinning Wrench: Spinmaster 950H hydraulic powered left and right hand rotation for 2-7/8" 9-1/2" O.D.
- o. Mathey wireline measuring assembly with 20,000' of .092" steel line.
- p. Drilling Recorder: Petron IDS 2000 data acquisition system and drilling recorder located on rig floor. Remote stations located in Toolpusher's and Company Man's office. System displays and records drilling data such as hookload, depth, pump pressure and SPM, ROP, rotary torque and RPM, flow in and out, pit volume totalizer, and mud gain and loss.

## 4. <u>DRILL STRING:</u>

- a. Drill Pipe:
  - (1) 10,000', 5" OD Grade S135 19.5 lb./ft. Range 2 drill pipe with 5" XH x 6-1/2" OD tool joints.
  - (2) 5,000', 5" OD Grade G 19.5 lb/ft Range 2 drill pipe with 5" XH x 6-1/2" OD tool joints.

## b. Drill Collars:

- (1) Twelve (12) 8" OD nominal x 2-13/16" ID x 31' long with 6-5/8" API Reg. connections, grooved for "zip" handling.
- (2) Twelve (12) 6-1/2" OD nominal x 2-13/16" ID x 30' long with 4" IF tool joints, grooved for "zip" handling.
- c. Subs: Sufficient for Contractor-furnished drill pipe, drill collars; and drill tools including kellys.

- d. Drill pipe wipers for 5" drill pipe.
- e. Thread Protectors: Sufficient for Contractor-furnished drill string.

## 5. BLOWOUT PREVENTERS:

- a. Diverter System: Hydril type MSP-2000, 21-1/4" annular used with drilling spool between wellhead and Hydril. Spool has two (2) 12" outlets for port and starboard diverter lines.
- b. 13-5/8", 10,000 psi WP Blowout Preventer System consisting of the following:
  - (1) One (1) CIW double "U" ram preventer with four flanged outlets fitted with one set of pipe rams for 5" drill pipe and one set of blind rams.
  - (2) One (1) CIW double "U" ram preventer with four flanged outlets fitted with two sets of pipe rams for 5" drill pipe.
  - (3) One (1) 13-5/8" 5,000 psi WP Cameron annular blowout preventer.
  - (4) Blowout preventers are trimmed for  $H_2S$  service.
  - (5) A 100-ton blowout preventer handling system, including air-powered hoists and trollies.
- c. BOP Choke and Kill Line System:
  - (1) Two (2) 3-1/16", 10,000 psi WP hydraulic valves.
  - (2) Two (2) 3-1/16", 10,000 psi WP manual valves.
- d. Blowout Preventer Control System:
  - (1) 262-gallon accumulator capacity.
  - (2) 450-gallon fluid reservoir.
  - (3) Two (2) 30-hp, 3,000 psi, 14.2 gpm electric triplex pumps.
  - (4) Two (2) air-powered pumps, capacity 7.8 gpm at 3,000 psi.
  - (5) Manifolding valves and regulators for functioning following:
    - (a) Hydril.
    - (b) Four (4) ram type BOP's.
    - (c) Two (2) hydraulically-operated choke and kill valves.
    - (d) Two (2) spare.
    - (f) Diverter control system.
  - (6) Electric control panel on drill floor.
  - (7) Electric remote control panel in toolpusher's office.

- e. Choke Manifold: 3-1/16" 15,000 psi WP, suitable for H<sub>2</sub>S service, with:
  - (1) Two (2) 3" automatic 15,000 psi WP Cameron chokes with remote control panel.

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- (2) One (1) 3" manual adjustable choke.
- (3) Full opening by-pass line 3".

## 6. DOWNHOLE TOOLS AND EQUIPMENT:

- a. Inside BOP: Two (2) Gray inside blowout preventers for 5" drill pipe, 15,000 psi WP.
- b. Float Valve: Baker model G full-flow for Contractor's drill string.
- c. Drift Indicator: Totco, 0-8 degrees and 0-16 degrees, for Contractor-furnished equipment.
- d. Safety Valves: Two (2) Omsco full opening drill string valves.

## 7. DRILL STRING HANDLING TOOLS:

- a. Slips, Drill Pipe:
  - (1) Varco type SDXL-5"; two sets.
  - (2) Varco type PS15 power slips-5"; one set.
- b. Slips, Drill Collar; two sets each:
  - (1) Varco type DCS-L: 6-3/4" 8-1/4".
  - (2) Varco type DCS-R: 5-1/2" 7".
- c. Elevators, Drill Pipe: 350 ton 5", two sets.
- d. Links, Elevators:

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- (1) Varco 2-3/4" x 132" 350-ton; one set.
- (2) BJ 3-1/2" x 144" 500 ton; one set.
- e. Elevator, Zip Lift: BJ type SLX-150. Side door for 8" and 6-1/2" drill collars; one set each.
- f. Tongs, Drill Pipe: BJ type "DB" Range 3-1/2" 8-1/4"; two sets.
- g. Lug Jaws for 8" 11-1/4"; 11-3/4" 14-3/8"; 16" 17"; two sets each.
- h. Hinge Jaw: 8-1/4" 17"; one set.

- i. Safety Clamps:
  - (1) Varco type MP-R Range 5-1/2" 7".
  - (2) Varco type MP-R Range 6-3/4" 8-1/4".
- j. Bit Breakers: Bit breakers for sizes: 26", 17-1/2", 12-1/4", 8-1/2" and 6" bits; one set.
- k. Air Tuggers: Four (4) air tuggers.

## 8. MUD FACILITIES AND EQUIPMENT:

a. Mud Storage Tanks: Total 2600 BBLS

Mud Tank No. 1: 495 bbls Mud Tank No. 3: 430 bbls Mud Processing Tanks: 625 bbls Mud Tank No. 2: 495 bbls Mud Tank No. 4: 455 bbls Slugging Pit: 100 bbls

- b. Shale Shakers: Three (3) Derrick Flo-Line cleaners cascading into two (2) Thule VSM 300 flowline cleaners(Replacement screens to be provided by Operator).
- c. Desander: Brandt SRS-3 desander unit charged by Mission 8 x 6R centrifugal pump driven by 100-hp explosion-proof electric motor.
- d. Desilter: Brandt SE-16 desilter unit charged by Mission 8 x 6R centrifugal pump driven by 100-hp explosion-proof electric motor.
- e. Mud Agitators:
  - (1) One (1) 5-hp explosion-proof electric mud mixer mounted on slugging pit.
  - (2) Four (4) 25-hp explosion-proof electric mud mixers mounted on main mud tanks.
- f. Mud-Gas Separator: Global Marine design.
- g. Degasser: Brandt model DG-10, charged by Mission 8 x 6R centrifugal pump driven by 100-hp explosion-proof electric motor.
- h. Mud Testing Facilities: Basic kit for viscosity, filtration, weight, and titration.
- i. Mud Mixing Pumps: Two (2) Mission 8 x 6R centrifugal pumps driven by 100-hp electric motor.
- j. Pit level indicator on active tank with totalizer at drilling position.
- k. Manifolding to cement surge tank to permit mixing barite plug at cementing unit.

I. Gas Detection System: Seigar fixed combustible eight-point monitor gas detection system with sensors strategically located on the rig.

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## APPENDIX I

## DESCRIPTION

## GLOMAR BALTIC I

## A. GENERAL:

- 1. Type:
- 2. Design:
- 3. Classification:
- 4. Country of Registry:

#### Self-Elevating Drilling Unit — Cantilever Marathon LeTourneau Super 300 — Cantilever (Slotilever) ABS Maltese Cross Al U.S.A.

## B. DESIGN CRITERIA:

- 1 Maximum Drilling Depth (Rated): 25,000 feet.
- 2. Maximum Storm (with 515 ft. of leg installed):

Water Depth	Maximum Wind Including Gusts	Maximum Wave Trough To Crests	Assumed <u>Air Gap</u>	Assumed Penetration
375 ft. 350 ft. 325 ft. 300 ft. 250 ft. 200 ft.	100 kts 100 kts 100 kts 100 kts 100 kts 100 kts 100 kts	60 ft. 15 sec. 61 ft. 15 sec. 62 ft. 15 sec. 64 ft. 15 sec. 66 ft. 15 sec. 68 ft. 15 sec. 66 ft. 15 sec.	50 ft. 50 ft. 50 ft. 50 ft. 50 ft. 50 ft.	25 ft. 25 ft. 25 ft. 25 ft. 25 ft. 25 ft. 25 ft.

- NOTE: Any increase in penetration will result in corresponding decrease in water depth any decrease in penetration does not increase the water depth.
  - 3. Minimum Water Depth: 25 ft. Shallower locations possible under certain conditions. All drilling locations are subject to Insurance Surveyor's approval.
  - 4. Maximum Water Depth: 375 ft.
  - 5. Minimum Design Air Temperature: -20°C.

## C. CANTILEVER (SLOTILEVER) CAPABILITY:

Cantilever can be skidded 60 ft. from the stern of the jackup to the centerline of the rotary, and the drill floor can be maneuvered 12 ft. each side of center. Slot allows drilling 10 feet forward of the stern.

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# D. **PRINCIPAL DIMENSIONS:**

E.

1.	Length Overall:	- <b>270 ft.</b>
· 2.	Breadth:	<b>268 ft.</b>
<b>`</b> 3.	Depth of Hull:	28 ft.
4.	Distance between centers of two aft legs:	180 ft.
5.	Distance between center of bow leg and centerline of aft legs:	171 ft.
6.	Diameter of Spud Can: (Across the flats)	55 ft.
7.	Height of Spud Can:	32 ft.
8.	Total Length of each leg:	515 ft.
<u>L0/</u>	ADING AND TOWING DATA:	. · ·
1.	Average Towing Speed:	4.0 knots with 16,000 hp ocean góing tug.
2.	Displacement at the Loadline: (16.5 ft. of draft on the hull)	18,489 S. Tons
3.	Minimum Draft:	12 ft. 9 in.
4.	Maximum Leg Length for location tows:	515 ft.
5.	Maximum Leg Length for ocean tows:	498 ft.
6.	Maximum variable drilling load: (excluding 750 S. Tons cantilever load)	4,200 S. Tons
	Variable load is the weight of supplies that are expendable, readily removable, or consumed during drilling operations.	•

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# Variable load consists of such items as:

	a) Liquid Mud b) Bulk Mud c) Bulk Cement d) Chemicals e) Diesel Fuel f) Potable Water g) Drill Water	h: ;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;	Lube Oil Casing Drill Pipe Drill Collars Supplies Sack Materia Spare Parts	u. Als
7.	Preload Capacity:			11,548 S. Tons
STOR	AGE CAPACITY:			
<b>1.</b> <sup>.</sup>	Drill Water:			18,384 bbls.
2.	Potable Water:			2,192 bbis.
3.	Fuel Oil:	5,933 bbls.		
4.	Bulk Cement:			6,800 cu. ft.
5.	Bulk Mud: Surge Tank:			6,800 cu. ft. 70 cu. ft.
6.	Liquid Mud: (includes mud processing tanks)			2,600 bbls.
7.	Base Oil:		•	1,680 bbls.
8.	Brine:			1,100 bbls.
9.	Tubular Storage Area: (approximate)			5,728 sq. ft.
10.	Sack Storage: (approximate)	•		2,400 sq. ft.
Note;	Any combination of the above variable load.	cannot	exceed the	maximum allowable
JACK	ING DATA:		• •	

- 1. Marathon LeTourneau Rack and Pinion Type Jacking System driven by 600 volt AC electric motors.
- 2. Approximate Jacking Speed: 1-1/2 fpm
- 3. Marathon LeTourneau Out-of-Level Warning Devices are provided.

F.

G.

4. Maximum Jacking Load:

12,100 S. Tons.

 All jacking operations and conditions are subject to Insurance Surveyor's approval.

## H. <u>SUBSTRUCTURE</u>:

- 1. Marathon LeToumeau type with transverse skidding of drill floor and longitudinal skidding of substructure, driven by AC electric motors.
- 2. Rotary Load (maximum): 650 S. Tons
- 3. Setback Load (maximum):
- Cantilever is designed for the combined rotary and setback loads not to exceed:

750 S. Tons

400 S. Tons

5. Center of rotary can be positioned a maximum of 12 feet either side of hull centerline, and a maximum of 60 feet aft of the hull.

## I. <u>HELIPORT</u>:

- 1. 83 feet in diameter. Designed to support an S-61 helicopter in accordance with Sikorsky specifications.
- 2. Perimeter lighting system with alternating blue and amber lights.
- 3. Foam fire-fighting system.

## J. LIVING QUARTERS:

- 1. Air conditioned quarters for 96 persons, including six (6) hospital berths.
- 2. Single galley and double mess rooms.

## K. <u>METEOROLOGICAL INSTRUMENTS:</u>

- 1. Anemometer.
- 2. Barometer.
- 3. Thermometer.

## L. <u>COMMUNICATIONS EQUIPMENT</u>:

- 1. Single side band radio (Marine Frequencies, 2-24 MHz).
- 2. VHF-FM Transceiver (Marine Frequencies, 156 MHz).
- 3. Gaitronics paging/telephone system.

## M. POWER GENERATING EQUIPMENT:

- 1. Diesel Engines: Three (3) EMD Model MD16E8. Cost of increased lube oil change frequency due to use of diesel fuel with greater than 0.5% sulfur content for Operator's account.
- 2. Generators: Three (3) 1400 kw, 600 volt AC.
- 3. DC Power: Ross-Hill SCR system with controls for eight (8) DC drilling motors.
- 4. AC Distribution: Two (2) 1,000 KVA 600V/480V transformers. 480V motor control center and distribution panels.
- 5. Emergency Power: One (I) Caterpillar D-398 with 800-kw generator.

## N. AIR COMPRESSORS:

- 1. Three (3) 350 CFM, 125 psi air compressors with after coolers and air dryer.
- 2. One (1) 650 CFM, 40 psi air compressor for bulk handling.

## O. WATER DISTILLATION UNIT:

One (1) waste heat unit, 8,000 gpd, Atlas-Denmark model AFGV-2SE-61-H1-MC.

## P. <u>SERVICE PUMPS</u>:

For fuel, drill water, fire, bilge, potable water, and sanitary water. Three (3) raw water pumps.

## Q. <u>FIRE-FIGHTING AND SAFETY EQUIPMENT</u>:

- 1. Halon system in engine room, paint locker, and mud pit room.
- 2. Salt water hose system.
- 3. Portable dry chemical fire extinguishers.
- 4. Portable CO<sub>2</sub> fire extinguishers.

- 5. Adequate first aid facilities.
- 6. Foam fire-fighting system on helideck.

## R. LIFESAVING EQUIPMENT:

- 1. Life Rafts: Sufficient U.S.C.G. approved inflatable life rafts to accommodate all personnel on board.
- 2. Lifeboats: Two (2) 58-man U.S.C.G. approved Watercraft lifeboats.
- 3. Life Jackets: Sufficient to furnish all personnel with one (1) each plus excess as required by U.S.C.G.

## S. MEDICAL FACILITIES:

- 1. First Aid supplies and equipment.
- 2. Hospital with six (6) berths.

## T. <u>CRANES</u>:

Three (3) Marathon LeTourneau Series PCM-220SS cranes, two with 140 ft. booms and one with 100 ft. boom, rated at 55 S. tons at 51 ft. radius.

## U. WELDING MACHINES:

Three (3) 600-amp Miller electrically driven.

## V. LIGHTING, WIRING, AND CONTROLS:

Vapor-proof or explosion-proof, as required.

## W. <u>SEWAGE TREATMENT PLANT</u>:

Omnipure, 120-man unit.



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	C AP[	DERRKS APD Checklist			
API NUMBE	R: 427114056401	APD AF	PROVAL DATE	2:	
LEASE OPERATOR: Co LEASE NUMBER: GO AREA/BLOCK: HI WELL: A	astal Oil & Gas Corporatio 2429 A 351 010 ST: 01		RIG INFO: RIG NAME: GLOMAR BALTIC I RIG ID NUM: 90820 RIG TYPE: JU		
WATER DEPTH: 314 RKB ELEVATION: 124	ft. OIL BASE MUD: ft. SUBSEABOP:	N DRIVE	SIZE: 22 in. EPTH: 635 ft.	PLAN NU PLAN APP	MBER: S - 4694 ROVAL DATE: 6/7/199
Remarks: 560	RECOVERY				
A. CASING INFOR	MATION				
1. Casing Produ	ction : MASP =	5319 psi			
Size (in)	Casing Type	Casing Burst (J	osi) Casing To	est (psi) 70	)% Casing (psi)
7	Production Liner	10860	203	38	5755
2. Casing Burst	Pressure (Surface	MASP from n	ext Drilling Ir	nterval)	
Size (in)	Casing Type	Casing Burst	MA (nsi) BHP (n	ASP @ Surf (si) FG at S	ace Shoe (nsi)
18.625	Conductor Casing	2250	938	576	(por)
13.325	Surface Casing	3450	2581	(2198	þ
9.625	Interm 1 Casing	10900	3400	5648	>
3. Casing Test F	Pressure				
				Test I	Pressure Req'd
Size (in)	Casing Type Surface Casing	2233	70% MIYP (	<b>(psi) Casi</b> 2198	ng / Liner Test
9.625	Interm 1 Casing	4000	6590	<3400	$\triangleright$ N/A
7	Production Liner	2038	5755	N/A	1748
		2000			

<b>*</b> , 5	4. Size	e of Casi	ngs	
		Size (in)	) Casing Type	Preventer Size (in)
		13.33	Surface Casing	21.25
	<u>/</u>	9.625	Interm 1 Casing	13.625
	1	7	Production Liner	13.625

B. CEMENT PROGRAM

		Cemen	t in c	u. ft.
Size (in)	<b>Casing Type</b>	Operator		MMS
 18.625	Conductor Casing	1497	VS.	688
 13.325	Surface Casing	5461	VS.	2825

## C. FORMATION INTEGRITY TEST

/	Size (in)	<b>Casing Type</b>	MW (pr	og)	FIT (ppg)	FIT - MW (ppg)
	9.625	Interm 1 Casing	11.5	VS.	14.5	3.0
	7	Production Liner	12.5	VS.	16.	3.5

- D. MUD PROGRAM
  - Minimum mud requirements
    - 1000 sx Barite \_\_\_\_\_ 200 sx Gel
    - Mumber sx to raise system weight by 0.5 ppg
  - \_\_\_\_ Mud disposal statement
  - NO Will oil base mud be used

# E. PLAT INFORMATION

- **Drawn to scale of 2000 feet to the inch**
- **Show surface and subsurface location of well to be drilled**
- Show surface and subsurface location of previously drilled well
- Locations indicated in feet from block line
  - Producing zone 500 feet from property line
- F. RIG INFORMATION

L

- If already on file proceed to Part G.
- Mobile units

**12/31/2003** ABS or other appropriate classification society documentation of operational limitations Load Line Certificate

Either USGS Certificate of Inspection or letter of compliance 5/10/2001 Identification of the maximum environmental and operational conditions the rig is designated to withstand **All Units** Rated capacities of the proposed drilling unit and of major drilling equipment **DIVERTER DRAWING** G. **Plan View** Elevation **Spool Outlet** 10-inch Platform or Jack-up Rig 12-inch Semi-Submersible **Diverter Lines** D Test diverter to 200 psi Length Diameter **Burst Strength Radius of Curvature** Are 90 degree turns targeted One 90 degree turn on a jack-up Valves Type (no manual or butterfly valvess allowed) D Size Working pressure rating Valve location **Control instrumentation logic Operating procedure** Η. **BOP STACK INFORMATION** BOP Working Pressure vs. ASP Surface Pressure (nsi) Working Pressure (nei)

				ing r ressur	Surface	Surface r ressure (psi)		
	Casing T	уре	Annular	/ Ram /	Wellhd	BHP /	FG at Shoe	
	Surface	Casing	5000	10000	5000	2581	2198	
~	Interm 1	Casing	5000	10000	5000	3400	5648	
<u> </u>	Production	Liner	5000	10000	5000	N/A	N/A	

Well control procedure for annular where ASP > WP annular prevente

Description of BOP accumulator system or other type of closing system proposed for use (activation)

Schematic of BOP stack

Does BOP stack have one annular?

**\_\_\_\_\_** Does BOP stack have two pipe rams?

If using a tapered drillstring, does the stack have two sets of pipe rams capable of sealing around the larger size drillstring and one set of pipe rams capable of sealing around the smaller drillstring or a varible bore pipe ram in lieu of one of the larger piipe rams?

Does the stack have one blind ram for a surface stack?

Does the stack have one blind ram/shear ram for a subsea stack?

Kill line with a remote controlled valve or two manual valves

**Fillup line above uppermost preventer** 

Choke line with remote controlled valve

**BOP Test Pressures** 

	Test Pressures (psi)					
Casing T	ype	Annular /	Ram	MASP +500 (psi)		
Surface	Casing	3500	3500	2698		
Interm 1	Casing	3500	5000	3900		
Production	Liner	3500	5000	3900		

I. OTHER

- Pore pressure, mud weight, and fracture gradient plot
  - \_\_\_\_ Logging program
- Coring program
  - Zone protection statement
- Directional program
- Floater evacuation plan
- H2S Contingency Plan, if applicable
- J. PUBLIC INFORMATION COPY

Do they have one?

8G Lease?

Reviewed by: